

Amendments to the Drawings

The attached sheet of drawings includes changes to Fig. 1. This sheet replaces the original sheet of drawings.

Attachment: Replacement sheet

REMARKS

After entry of this amendment, claims 1-54 and 69-70 are pending; reconsideration is respectfully requested.

Title of the Invention (*Para. 2 in the Office Action*) - the title of the invention has been amended as requested by the Examiner.

Drawings – (*Para. 3 in the Office Action*) A replacement drawing is filed herewith showing the slip form 21. No new matter is added as the slip form was clearly disclosed in the specification.

35 USC § 112:

(*Para. 4a and 4b in the Office Action*) Claims 32 and 34 have been amended to depend from claim 29. Thus, Applicants request the rejections be withdrawn.

(*Para. 5 in the Office Action*) The Examiner has rejected claims 22-24 as allegedly failing to comply with the enablement requirement, specifically, allegedly claiming subject matter not disclosed in the specification. Applicants traverse this rejection.

Claims 22 – 24 recite certain additive limitations. There is support in the specification at para. 0026 with lists of example additives for each of the claimed additive limitations.

Accordingly, Applicants respectfully request that this rejection be withdrawn.

Objected to Claims: (*Para 14 of the Office Action*) Claims 28-31 and 43 were indicated as being allowable if rewritten in independent form with all limitations of the base claim and intervening claims. The claims have been amended accordingly. Claims 31-35 depend from revised claims 28 and 29, and thus claims 28-35 and 43 are allowable.

35 USC § 102:

(*Para. 6 in the Office Action*) The Examiner alleges that Meininger (USP 4,581,163) teaches the subject matter recited in claims 1-2, 4-6, 15, 17, 27, 36, and 44-53. Applicants traverse these rejections.

Claim 1 has been amended and thus this rejection is now moot. Claims 2, 4-6, 15, 17, 27, 36, and 44-53 depend from claim 1 and thus the rejections as to these claims are also now moot.

35 USC § 103:

(*Para. 8 in the Office Action*) The Examiner alleges that Meininger (USP 4,581,163) together with the knowledge of a person of ordinary skill in the art teaches the subject matter recited in claim 16. Applicants traverse this rejection.

First, the Examiner acknowledges that Meininger does not teach or suggest the method recited in claim 16 (Office action, para. 0008). Second, Applicants note that the Examiner offers no support for his assertion that the subject matter of claim 16 would be within the knowledge known by persons of ordinary skill in the art but offers only the Examiner's conclusory statement in the Office action. The Examiner's conclusory statement is not sufficient to support an official notice of the same nor is it sufficient to support a finding of the claimed subject matter being common knowledge. Even if it were, it is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based. MPEP § 2144.03 Zurko, 258 F.3d at 1385, 59 USPQ2d at 1697.

Further, claim 16 is dependent upon claim 1 (and thus is allowable for the reasons claim 1 is allowable and for similar reasons as those discussed below in relation to claim 3). The Meininger reference neither teaches nor suggests the method recited in claim 16 and thus, claim 16 is allowable.

(*Para. 9 in the Office Action*) The Examiner alleges that Meininger (USPN 4,581,163) together with Chapman (USPN 5,443,618) teaches the subject matter recited in claims 3, 7, 8, 26 and 54. Applicants traverse these rejections.

Claim 3 recites in part, heating hazardous and/or contaminated and/or waste materials at a temperature of from about 1400 to about 2000 degrees C. The Examiner admits that Meininger neither teaches nor suggests such temperatures for heating the materials (Office Action, para. 9). This is not surprising since the Meininger container could not withstand such temperatures.

Meininger teaches use of a sheet metal (i.e., steel) container having a refractory concrete layer and insulating material. (See, e.g., C. 2, ll. 18-23; C. 3, ll. 10-12; C. 3, l. 67 through C. 4, l. 2.) The Meininger design could not withstand the recited temperatures. If the melt temperature employed in the Meininger device were within the currently claimed range, the Meininger container would be exposed to temperatures significantly above the softening point of steel and the container would lose the needed integrity to hold the molten material or would even completely melt.

More specifically, as the Examiner will recognize, the temperature drop through such a relatively thin layer of refractory concrete (1-2 inches; C. 3, ll. 10-12) would be minimal so the temperature at the insulation layer surface would be nearly the same as that of the molten material. The 1-2 inches of insulation (C. 3, ll. 10-12) clearly is too thin to adequately inhibit the flow of the majority of the heat from the molten material to the outer steel container. Typical steel melts at about 1300 to 1400°C and steel softens at about 400°C. As we are sure the Examiner recognizes, because there is only a 2-4 inch thick layer of protective materials, the Meininger steel container would in fact melt and disintegrate if the molten material in the container were much above the melting temperature of steel. Even if the materials in the container are heated to near 1300°C, the steel container would soften significantly (or even melt), the insulation material would then be unsupported and the relatively thin refractory concrete would not be sufficient to maintain the molten material. Since at the claimed temperature range the softened or melted Meininger container could not maintain the molten material, Meininger alone or combined with the art of record does not meet the recited method limitations of claim 3.

The problems of the Meininger container operating at the claimed temperatures as proposed is exacerbated by the presence of the thermal insulating jacket Meininger specifies be used to surround the steel container during cooling (C. 5, ll. 32-41). The thermal insulating jacket will prevent air cooling of the steel container, resulting in an increased temperature through the whole profile of layers: insulation, steel, insulation again, and refractory concrete. This further ensures that the Meininger steel container would melt at the proposed temperatures.

Although the Examiner suggests that the Meininger reference and alleged teaching could be modified using the temperature ranges disclosed in Chapman, i.e., temperatures "up to 1500°C" (Chapman at C. 5, l. 10 as cited by the Examiner in para. 9 of the Office Action), as discussed above, such temperatures would cause the Meininger container to soften and/or melt. Thus, the Meininger container would be unable to maintain the molten contents therein, as recited in the method of claim 3. As the Examiner knows, if the Examiner's proposed modification of the Meininger device to use the high temperatures of Chapman would render the Meininger device unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP § 2143.01; *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

It is also notable that the Meininger reference did not contemplate a container that could withstand such temperatures as recited in the claim 3 method because Meininger requires

additives be added to the waste before vitrification in order to allow melting of the materials at significantly lower temperatures (see, e.g., C. 4, ll. 38-44 where Meininger states that "additive material [is] required for vitrification.").

At least for the reasons set forth above, the proposed combination of references neither teach nor suggest the method recited in claim 3.

Claim 7 recites the method of claim 1 wherein the waste material is heated by at least two removable electrodes located in the material to be treated and passing a current between the at least two removable electrodes. As admitted by the Examiner, the Meininger reference fails to teach or suggest removable electrodes (Office Action para. 9). In addition, for the reasons discussed above in relation to claim 3, the Meininger reference cannot be combined with Chapman to be heated to the temperatures recited in the method of claim 3. Modifying the Meininger device with the Chapman electrodes would not help with this problem since the Meininger container cannot withstand the temperatures recited in the present claim.

Accordingly, claim 7 is allowable over the art of record.

Claim 8 recites the method of claim 7 including a starter path material. Claim 8 is allowable over the proposed combination of references for the same reasons set forth in relation to claims 3 and 7 and based on its own unique and non-obvious combination of features.

Claim 26 recites the process of claim 1 wherein the material is passively added to the container as the material in the container is being heated. As set forth in the specification of the current application (e.g., para. 0017), passive feeding occurs when additional material to be treated is positioned at the top of the container *prior to the start of the melting process*. All the material to be treated is in the container before heating but material already in the container at the top of the container sinks in (is passively added) as the material lower in the container melts. No material is added to the container during melting. During active feeding, *additional material* to be treated *is added to the container during the melting process*.

As noted by the Examiner (Office Action, para. 9) Meininger fails to teach or suggest passive feeding. However, contrary to the Examiner's assertion, the Chapman reference also fails to teach or suggest passive feeding. The very citation of Chapman referenced by the Examiner, C. 5, ll. 25-28, teaches actively feeding material to the container during the melting process. For further description of the active method taught by Chapman see also, e.g., C. 5, ll. 25-28, stating "After the feed material is initially melted, subsequent introduction of feed material causes an excess of feed material 40 to occur "floating" on the glass pool 36."

Accordingly, claim 26 is allowable over the art of record.

Claim 54 also recites a process wherein the material is passively added to the container as the material in the container is being heated. Accordingly, claim 54 is allowable for the same reasons set forth above in relation to claim 26.

(*Para. 10 in the Office Action*) The Examiner alleges that Meininger (USPN 4,581,163) together with WO03/026745A1 or with Spector (USPN 3,110,557) teaches the subject matter recited in claims 9-13, 18-21 and 25. Applicants traverse these rejections.

Claim 9 recites a method including, in part, placing materials including hazardous and/or contaminated substances into a container that can withstand temperatures of up to 2000°C without significant degradation of the container. As stated by the Examiner, Meininger fails to teach or suggest such temperatures. In addition, however, as set forth above in relation to claim 3, Meininger also fails to teach or suggest a container that can withstand temperatures of up to 2000°C. In fact, 2000°C is far above the melting point of the steel Meininger container and for the reasons stated above, the concrete refractory layer and the relatively thin insulating layer will not protect the steel container from melting. The insulating jacket that Meininger includes on the outside of the steel container further ensures that the container will simply melt.

The Examiner suggests that combining Meininger with the disclosure of the reference WO03/026745A1 teaches heating the Meininger container to up to 2000°C. As just discussed, such temperatures will simply melt the Meininger container. Accordingly, the proposed modification of Meininger with WO03/026745A1 does not make up for the deficiencies of Meininger alone. And as the Examiner knows, if the proposed modification of the Meininger device to use the high temperatures of WO03/026745A1 would render the Meininger device unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. MPEP § 2143.01. Melting the Meininger container by using the high temperature suggested in the reference WO03/026745A1 would clearly make Meininger unsatisfactory for its intended purpose.

Claims 10-13 and 18-21 are allowable for the same reasons set forth above in relation to claim 9 and also for each of these claims' unique and non-obvious combination of features. Furthermore, nothing in the Meininger reference (including those citations noted by the Examiner in para. 10 of the Office Action) teach or suggest a heating device that is not connected to the container (claim 11).

Claim 25 is allowable over the art of record for the same reasons as set forth above in relation to claim 3 and other claims where temperatures must reach 1400°C or higher.

(*Para. 11 in the Office Action*) The Examiner alleges that Meininger (USPN 4,581,163) together with Hansen (USPN 6,120,430) teaches the subject matter recited in claims 37-39. Applicants traverse this rejection.

First, please note that Hansen is owned by Geosafe, the assignee of the present application, and was owned by Geosafe at the time of the present invention and thus is not available as prior art under 35 USC § 103(c).

Second, claims 37-39 depend from claim 1 which was amended to recite, in part, heating hazardous and/or contaminated and/or waste materials to be treated in the container at a temperature of at least about 1400°C. As mentioned above, the Meininger reference cannot be modified to treat materials at such temperatures and still maintain the integrity of its container such that it can meet the container limitations recited in claim 1 nor would it even be suitable for Meininger's own intended purposes. Nothing in Hansen makes up for these deficiencies in Meininger. Accordingly, claims 37-39 are allowable over the art of record and are allowable for their own unique and non-obvious combination of features.

(*Para. 12 in the Office Action*) The Examiner alleges that Meininger (USPN 4,581,163) together with WO03/026745A1 or with Spector (USPN 3,110,557) and Hansen (USPN 6,120,430) teaches the subject matter recited in claims 40-42. Applicants traverse this rejection.

Again, please note that Hansen is owned by Geosafe, the assignee of the present application, and was owned by Geosafe at the time of the present invention and thus is not available as prior art under 35 USC § 103(c).

Furthermore, as discussed above, neither WO03/026745A1 nor Spector make up for the deficiencies of Meininger or can modify Meininger for the reasons discussed above. Thus, claims 40-42 are allowable over the art of record. Claims 40-42 are also allowable for each claim's unique and non-obvious combination of features. For example, none of the cited references teaches or even suggests placing soil in the voids between the vessels containing the material to be treated nor does the Examiner cite any part of the references that teach or suggest such placement of soil. A conclusory statement that such claim limitations are obvious is insufficient to support a *prima facie* case of obviousness.

(*Para. 13 in the Office Action*) The Examiner alleges that Meininger (USPN 4,581,163) together with WO03/026745A1 or with Spector (USPN 3,110,557) and Powell (USPN 5,678,237) teaches the subject matter recited in claim 14. Applicants traverse this rejection.

The Examiner admits that Meininger does not teach or suggest removing the vitrified material from the container but suggests that Powell teaches such removal. This contention is incorrect. In Powell, the container with the vitrified material is removed from the Powell melting apparatus; however, the vitrified material is not removed from the Powell container.

Furthermore, as discussed above, Meininger cannot be modified to operate at the claimed method temperatures and Powell does not make up for these deficiencies of Meininger either. Accordingly, claim 14 is allowable over the art of record.

Applicants believe that the claims are in condition for allowance and early notification to this effect is respectfully requested.

Respectfully submitted,

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